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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/674,448
Filing Date: September 30, 2003
Appellant(s): HODES ET AL.

Marc Scott Hodes, et al.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 13, 2009 appealing from the Office action mailed January 28, 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-6** are rejected under 35 U.S.C. 102(b) as being anticipated by Lobert (US 4750693).

As well as claims 1 and 6 are understood, Lobert teaches a device for reducing the frictional drag in a moving vehicle such as airborne, waterborne and space vehicles. The device comprises a substrate (i.e., the body of the moving vehicle itself) having at least a first surface (the microstructure in Figures 4a) and a plurality of closed cells (grooves 10) disposed in a predetermined feature pattern on the at least first surface (the microstructure in Figures 4a). (See Col. 5, Lines 54-68) (See Figures 4a-4c) Lobert's device is applicable to vehicle surfaces as exemplified above (Col. 1, Lines 6-10) and it is inherent in Lobert's invention that a particular and chosen movement and direction of a moving body and taking into consideration appropriately selected parameters such as flow velocity, flow direction, drag factors, etc., that one can inherently can change the pressure of a first fluid disposed within the plurality of closed cells (10) in order to cause a selected liquid to change the degree of penetration of the feature pattern. It should be noted that Claim 1 is an apparatus claim and that the

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recitation, “means for changing the pressure of a first fluid disposed within the plurality of closed cells in order to cause a selected liquid to change the degree of penetration of the feature pattern” as recited in claim 1, Lines 5-7 appears to be more appropriately drawn to a method step not germane to patentability in apparatus claim 1. It does not appear that the “means for changing the pressure” structurally forms any part of the apparatus itself.

As well as claim 2 is understood, Lobert further teaches the plurality of closed cells each have at least a first dimension less than 1 millimeter. (See Col. 5, Lines 58-65)

As well as claim 3 is understood, Lobert further teaches the plurality of closed cells each have at least a first dimension less than 1 micron. (See Col. 5, Lines 58-65)

As well as claim 4 is understood, Lobert’s device is applicable to vehicle surfaces in different conditions or parameters (i.e., temperature of the air in a airborne vehicle, temperature of the water in a water vehicle) as exemplified above. Applicants recite “said means for changing the pressure of at least a first fluid comprises means for changing the temperature of said at least a first fluid. It is inherent as the different parameters (i.e., temperature) change in the different conditions as shown above that one can inherently can change the pressure of a first fluid disposed within the plurality of closed cells by changing of the temperature of the at least a first fluid. It should be noted that Claim 4 is an apparatus claim and that the recitation, “means for changing the pressure of a first fluid comprises for changing the temperature of said at least first fluid” appears to be more appropriately drawn to a method step not germane to

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patentability in apparatus claim 1. It does not appear that the “means for changing the pressure” structurally forms any part of the apparatus itself.

As well as claim 5 is understood, applicants recite “wherein said means for changing the pressure of at least a first fluid comprises means for injecting and removing varying amounts of said fluid into and out of said cells, respectively.”. It is inherent in Lobert’s invention that a particular and chosen movement and direction of a moving body and taking into consideration appropriately selected parameters such as flow velocity, flow direction, drag factors, etc., that one can inherently can change the amount of fluid into and out of the cells, respectively. It should be noted that claim 5 is an apparatus claim and that the recitation “said means for changing the pressure of at least a first fluid comprises means for injecting and removing varying amounts of said fluid into and out of said cells, respectively” appears to be more appropriately drawn to a method step not germane to patentability in apparatus claim 1. It does not appear that the “means for changing the pressure of at least a first fluid comprises means for injecting and removing varying amounts of said fluid into and out of said cells, respectively” structurally forms any part of the apparatus itself.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 12 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lobert.

Refer above for the teachings of Lobert.

Lobert fails to explicitly teach that the closed cells have width ranging from about 4 to 25 microns and have a height to width ration ranging from about 0.12 to 0.18.

Lobert does teach an example to determine the dimensions of the grooves/microstructures on the surface of the moving body that depends on the flight altitude of 11km, the average free travel length amounts to about 0.3 micron. This

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means that the dimension of the triangular groove shown in Figure 3 should amount to approximately 0.3 micron times 1.5 micron where the frictional drag can be reduced by 6%. (See Col. 5, Lines 55-68 and Col. 6, Lines 15-25) (See Col. 1, Lines 23-27)

It would have been obvious to one having ordinary skill in the art to provide Lobert with a plurality of closed cells having a width ranging from about 4 to 25 microns and have a height to width ration ranging from about 0.12 to 0.18 to achieve the predictable results of reducing frictional drag and therefore, reducing fuel intake and making the vehicle more economical.

(10) Response to Argument

1. Appellants argue that grounds for objecting to claims 1 and 5 have not been established.

With respect to claim objections, examiner has considered the arguments and respectfully agrees with appellants. Claim objections have been withdrawn.

2. Appellants argue that the Office action does not establish that Lobert anticipates claims 1-6

Appellants argue three independent reasons in support of their position which are as follows:

With regards to reason number one, Appellants submit that the examiner has not provided evidence that Lobert teaches *the closed cells* as recited in claims 1 and 5. Appellants argue that the grooves (10 or 10a) of Lobert are not closed cells. Examiner respectfully disagrees. Appellants provide a definition of a closed cell in the argument section of the appeal, which is "a closed cell is defined as a cell that is enclosed on all

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sides except for the side upon which a liquid is or could be disposed." It is the examiner's position that the groove of Lobert is a closed cell and further is a cell that is enclosed on all sides except for the side upon which a liquid is or could be disposed. Additionally, appellants have not claimed any specific shape as to what they define the recited closed cell.

With regards to reasons number two and three, appellants submit under 112th, paragraph six the examiner is required to construe the corresponding structure for the means for changing the pressure of at least a first fluid disposed within the plurality of closed cells as recited in claims 1 and 5. Appellants describe in page 5 of appellants appeal brief that the means for changing the pressure comprises means for injecting and removing varying amounts of the fluid into and out of the cells. Lobert teaches a device for reducing the frictional drag of moving bodies such as waterborne, airborne and space vehicles as similarly described in appellants disclosure pages 11-12. Appellants disclose in pages 11, lines 30-33 to page 12, lines 1-4, "when the submarine submerges, as illustratively represented by fig 11B, the water begins to exert a pressure P2 onto the feature pattern, thus resulting in a contact angle theta between the liquid and the pattern. The resulting increased contact angle will correspondingly increase the pressure of the fluid (e.g., air) within the cell from P0 to P1." It is the examiner's position that Lobert teaches a waterborne, airborne and space vehicle that inherently have a chosen movement and direction of the moving body and also taking into consideration appropriately selected parameters such as flow velocity, flow direction, drag factors, etc that one can inherently infer that these are means for injecting and removing varying

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amounts of the fluid into and out of the cells and are equivalent to appellants means for injecting and removing varying amounts of the fluid into and out of the cells.

Additionally, one can inherently change the pressure of a first fluid disposed within the plurality of closed cells in order to cause a selected liquid to change the degree of penetration of the feature pattern.

3. Appellants argue that the office action has not established that Lobert supports a prima case of obviousness claims 12-13.

Appellants arguments are the same as addressed above in claims 1 and 5.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Jyoti Nagpaul/
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